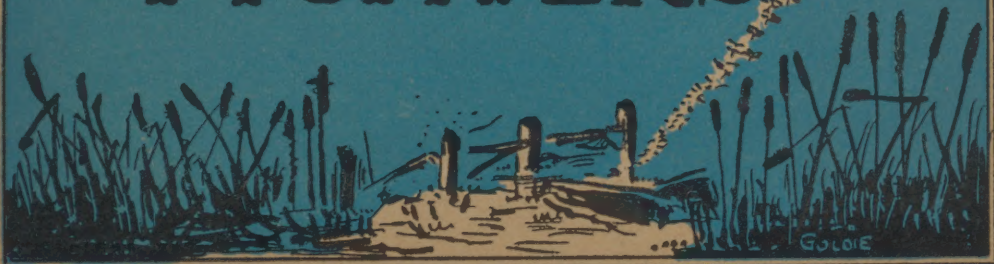


On Arch. Stricker - May 1926

MOSQUITO FACTS

for

MOSQUITO FIGHTERS



GOLDIE

MOSQUITO FACTS FOR MOSQUITO FIGHTERS

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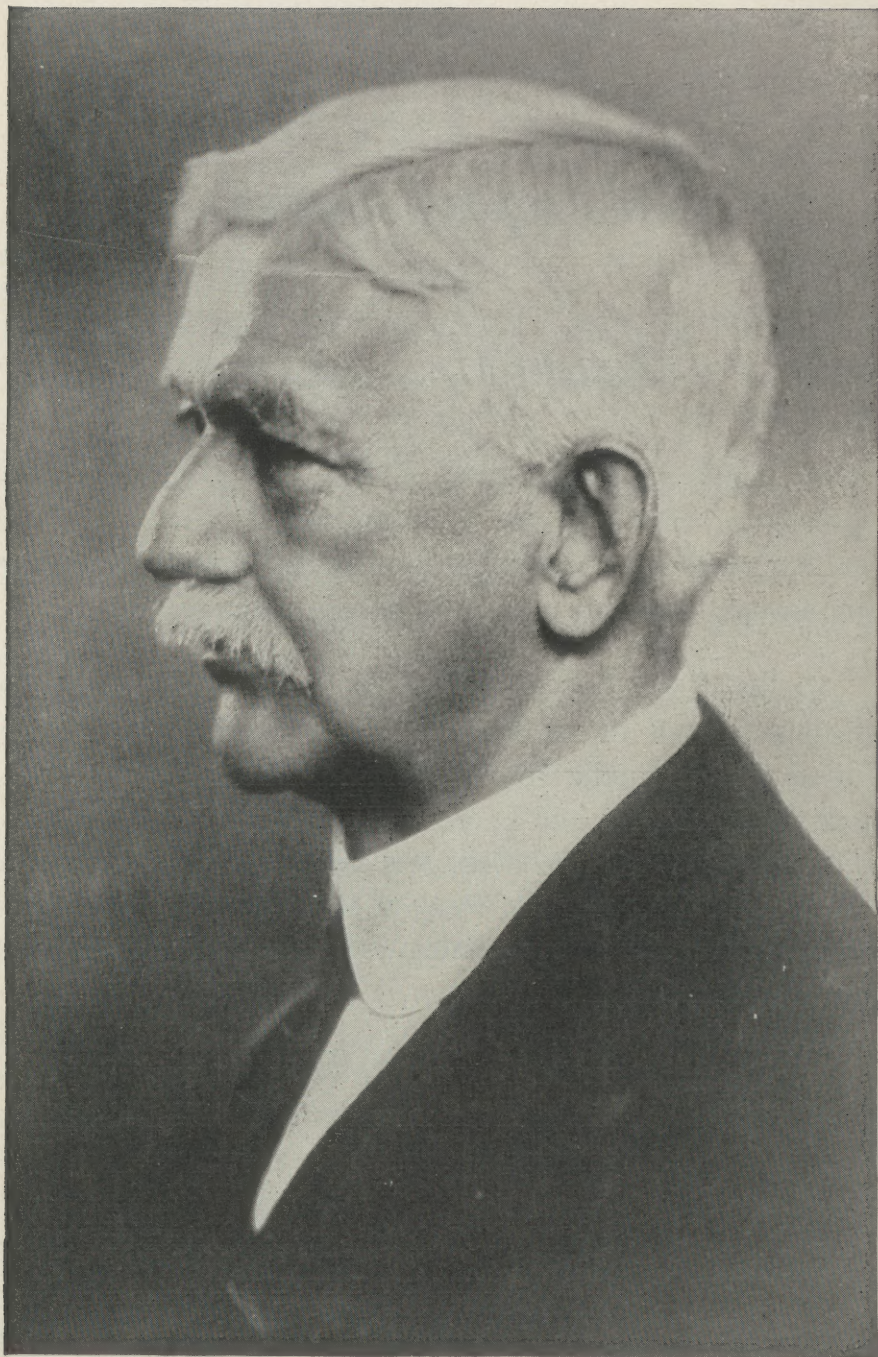
Mosquito Facts *for* Mosquito Fighters

TO acquaint boys and girls of Cook county with a knowledge of mosquito life in order that they may have an appreciation of the principles which underlie mosquito elimination, is the purpose of this little volume.

The assistance of three of America's greatest mosquito fighters, Joseph A. Le Prince, Senior Sanitary Engineer, United States Public Health Service, Thomas J. Headlee, State Entomologist and Secretary of the New Jersey Mosquito Abatement Association, and George Parker, Director of Malaria Control for the State of Mississippi, in the preparation of the lessons comprising the first part of the book, has been of inestimable value.

The cooperation of Edward J. Tobin, County Superintendent of Schools, in connection with the distribution of the book, is also acknowledged. Mr. Tobin says:

"I believe a knowledge of the mosquito and of the methods by which it can be eliminated will result in great good. There is no better medium than our schools for imparting such information in sources where it will do the greatest good. This department is glad to cooperate with all interested bodies."



GENERAL WILLIAM CRAWFORD GORGAS

Late Surgeon General of the United States Army during the World War for whom the Gorgas Memorial Institute was dedicated. The Institute is carrying out the ideals of preventive medicine practiced by General Gorgas so that human life may be longer and happier. Calvin Coolidge is Honorary President of the Institute.

FIGHTING MOSQUITOES

By FRANKLIN MARTIN, M. D.

President Gorgas Memorial Institute, Chicago

WHAT General Gorgas did we can do!

Mosquitoes are not only a nuisance, but by their bite they frequently produce disease.

More lives were saved by General William Crawford Gorgas in controlling mosquitoes in Cuba and in Panama than have been saved by the act of any other single man.

The French spent years attempting to build the Panama Canal. They failed because of the pest of mosquitoes which infected their workmen with yellow fever and malaria and caused a death rate from these diseases of more than 300 out of every 1000 of their men employed.

When the United States took over the work of digging the Panama Canal, General Gorgas was placed in charge of sanitation. Within six months after he was given full authority he eradicated yellow fever and malaria by controlling or destroying the mosquitoes that spread these diseases.

This success in controlling the mosquitoes by General Gorgas was in the heat and floods of a tropical country, which is most favorable for breeding mosquitoes. How much easier it is to prevent the breeding of these pests in our temperate climate by following the simple rules laid down in this volume, made possible by the Sanitary District of Chicago and compiled by Arthur Stringer, Associate Director of the Gorgas Memorial Institute.

We need not employ our valuable time and spoil our play hours by fighting a small but irritating insect. If the school children of Cook County will take the leadership in a war on mosquitoes they will succeed in an undertaking of great value, and set an example that may be followed with profit by all other cities and communities of our country.

Employ the simple methods which were carried out effectively by General Gorgas in the tropics. Expert advice in mosquito eradication may be secured from the Gorgas Memorial Institute, Inc., 400 North Michigan Avenue, Chicago.

LESSON ONE

Since the dawn of early history the mosquito has been a pest. Ancient writers record how the warriors of the olden days were forced to fight mosquitoes as well as their other enemies. According to the early historians, these insects swarmed in such prodigious numbers in Egypt that the natives of marshy regions built towers on which to sleep, since the mosquitoes did not fly high. They also used nets and canopies for protection in much the same manner they are used today in many sections of the United States.

Mosquitoes Are Found Everywhere

The army of Julian, the Apostate, on one occasion was so fiercely attacked by mosquitoes as to be driven back. In Ancient Greece the inhabitants of cities were sometimes forced to abandon their homes on account of mosquitoes. Sapor, the King of Persia, it is said, was compelled to raise the siege of Nisibit because the plague of "gnats" attacked his elephants and beasts of burden, and so caused the rout of his army.

The Greek civilization was the most glorious of antiquity, yet malaria, introduced by captives in the fifth century B. C., undermined the health of the people. Under this withering influence, the civilization of this great nation steadily decayed.

The decline of the Roman Empire began when malaria, probably introduced into that country from Africa by Carthaginian soldiers, several centuries B. C., fastened its hold upon the people.

Until William Crawford Gorgas, for whom the Gorgas Memorial Institute is named, conquered the Yellow Fever

mosquito at Havana and Panama, attempts at white colonization of the Tropics had been consistent failures.

In the neighborhood of Crimea, according to later writers, the Russian soldiers were obliged to sleep in sacks to defend themselves from mosquitoes; and in spite of this protection some of the soldiers died from these furious blood-suckers.

Spencer, the English writer of the Seventeenth Century, referred to the great swarms of mosquitoes in both England and Ireland. The lines of his "Faerie Queene,"

"Whiles in the air their clust'ring army flies

That as a cloud doth seem to dim the skies,

Ne man or beast may rest or take repast——"

indicate the magnitude and fierceness of the pest. Describing the Irish mosquito, he said, "they doe more to annoy the naked rebels and doe more sharply wound them, than all the enemies' swords and speares."

Today mosquitoes are found in all lands and in all climes. They are abundant in the torrid countries of the tropics and they are common in the frozen regions of Alaska. They pester the untutored native of the Malay States and with equal ferocity his more civilized brother of the Western countries.

The mosquito is no respecter of persons, boundary lines, or races. It is an undesirable inhabitant of the earth, and furthermore, is an unnecessary one.

Mosquitoes have been pests since the dawn of history, and they have caused nations to decay. They are found in all lands—all climes.

Thanks to General Gorgas, a way has been found to eliminate mosquitoes. In this modern age it is no longer necessary to tolerate them.

LESSON TWO

Means of controlling the mosquito perhaps would not have been found had it not been for the same underlying cause that brings to light many great facts, namely, the saving of human life.

Mosquito Control Saves Human Life

The man to make the first great major offensive against the mosquito with complete success was General William Crawford Gorgas. As a first lieutenant many years before he had acquired immunity by contracting yellow fever during a severe epidemic at Fort Brown near Brownsville, Texas. It is an interesting sidelight to note that it was while attending those ill with yellow fever that he met the lady who afterwards became his wife. Mrs. Gorgas is now living in Washington, D. C.

Without the immunity he had acquired it is doubtful whether General Gorgas would have survived the trying days in Havana, especially with his responsibilities and exposure to infection during his appointment as Chief Sanitary Officer of Havana.

Everybody knows now that yellow fever is transmitted from man to man by a certain kind of an infected mosquito. The discovery was made by the Walter Reed Board, which consisted of Doctors Reed, Lazear, Carroll and Agramonte.

Co-operating closely with these men were General Gorgas, Dr. Carlos Finlay, Dr. Antonio Albertini, and Dr. Juan Guiteras. As early as 1881 Dr. Finlay had suggested that a mosquito was the carrier of yellow fever. Proof was lacking then, but twenty years later his theory was found correct.

The Walter Reed Board was appointed by the then Surgeon General Sternberg of the United States Army to investigate the entire subject of yellow fever, and in 1901 the

Board, of which General Gorgas speaks as "this now famous and immortal board," presented its findings.

Upon the designation of the *Stegomyia* as the guilty mosquito transmitting yellow fever, General Gorgas, as Chief Medical Officer of Havana, set to work to devise means to conquer it.

His initial plan, the Gorgas Plan, of mosquito eradication is the same now as it was then. It is based on the destruction of mosquito larvae by drainage, whenever possible, and, by oil and other means, when it is not. Everything else is secondary to the Gorgas Plan.

With scientific knowledge and great ability Gorgas won this first great fight against mosquitoes. In less than eight months from the time he started, Yellow Fever, in Havana, had become history, and this in a city where yellow fever had been rampant continuously for 150 years; where for each of the ten years preceding the Spanish-American War there had been an annual average of 500 deaths from the disease.

By destroying the breeding places of yellow fever mosquitoes in Havana, Gorgas also destroyed mosquitoes which transmit malaria. Naturally, then malaria was greatly reduced. The Gorgas method of eradication was continued and malaria further decreased until now it is a rarity.

Today Havana is a healthy city, a resort for tourists from this country, who spend more each week than Gorgas spent for sanitation in a year.

When Dr. Carlos Finlay of Havana, in 1881, first suggested that yellow fever was transmitted, from man to man, by a certain kind of an infected mosquito, he was laughed at. Twenty years later The Walter Reed Board proved he was right.

General Gorgas devised means to conquer the yellow fever mosquito and in eight months yellow fever in Havana was gone.

LESSON THREE

In completing the Panama Canal, America won credit for doing what four hundred years of time and plans of other nations had failed to accomplish. The French had

Mosquitoes

Killed 1 out of 3

In Panama

first undertaken the construction of the Canal. They were forced to abandon the undertaking because they could not make progress under the handicap of yellow fever and malaria. After spending millions of dollars and losing thousands of employes, who died in the fever infested area, the French company went bankrupt. As was said later, they did not have a Gorgas to help them.

After accomplishing his achievement at Havana, General Gorgas was dispatched to the Panama Canal Zone. When the United States Government purchased the assets of the old French company for \$40,000,000, he was directed to take charge of protecting the great army of workmen from diseases of all kinds, and especially from the same yellow fever and malaria he had conquered in Cuba.

For four centuries before the arrival of General Gorgas, the Canal Zone had been regarded as the most unhealthy spot in all the tropical world. To give an idea of the terrible state of affairs under the French—it is a fact that every 300 out of each 1,000 men employed died every year. In other words, of each thousand men who came to work on the Canal, all would be dead in three years.

When Gorgas arrived, he was greeted with gruesome stories of death, and the saying that every tie in the Panama Railroad marked the grave of a victim of yellow fever. He was not deterred by the stories, nor by actual statements of people on every hand that he would fail and that his task was impossible. He went ahead, in spite of unreasoning opposition, clearing the jungles and cleaning out the breeding places of yellow fever bearing mosquitoes. In less than two years he transformed the Isthmus of Panama from a "house of disease and death" to a tropical paradise, generally healthier than most of the states in this country.

"That was the way the Canal was built," observed President Roosevelt on one occasion. "I selected men in whom I had confidence to complete the task assigned to them. I selected Gorgas because I knew that his experience, ability, and persistence would make the work he was entrusted with successful. After I selected and appointed him, I lent him the full measure of my support and influence.

"It would be too much to say that without Gorgas this work could not have been completed, but it can easily be said that he and his force were one of the greatest contributing factors in its completion."

Since Gorgas' work began to have almost miraculous results in reducing both sickness and death, the news of the miracle which was being accomplished spread around the world. Hundreds of visitors, who included doctors and health officers and officials from many foreign countries, came to view with their own eyes what Gorgas had accomplished. His demonstration of prevention, of sanitation, and of hygiene at Panama served to inspire other hundreds to renew their efforts in saving lives and preventing sickness.

The work which Gorgas accomplished at Panama alone



JOSEPH A. LE PRINCE

Fresh from Columbia he joined General Gorgas at Havana and remained as his associate until the completion of the Canal. Mr. Le Prince is an authority of international reputation in the mosquito field and the foremost in the United States. He is Chief Sanitary Engineer of the Federal Health Service, and is assisting in the anti-mosquito work in Chicago.

is conservatively estimated to have saved a total of 71,000 lives, and the United States Government a total of \$80,000,000. This record won for General Gorgas the title of "the greatest and most famous sanitarian of the ages."

In the work at Havana and Panama, Gorgas' right-hand man was Joseph A. Le Prince, now Senior Sanitary Engineer of the United States Public Health Service.

Through the courtesy of Surgeon General Hugh S. Cumming, of the United States Public Health Service, Mr. Le Prince was "loaned" to the Gorgas Memorial Institute and came to Chicago, on several occasions, to assist in the work of making this metropolitan area mosquito free. Chicago is fortunate indeed in having the advice of Mr. Le Prince, because he is recognized both here and abroad as the outstanding authority in measures having to do with mosquito eradication.

America first showed the world how to conquer mosquitoes on a large scale. The Gorgas Plan saved 71,000 lives and \$80,000,000 for Uncle Sam during the construction of the Panama Canal. This feat caused General Gorgas to be called "Physician to the World."

Joseph A. Le Prince, Senior Sanitary Engineer of the United States Public Health Service, was General Gorgas' right hand man at Havana and Panama. Thanks to Surgeon General Hugh S. Cumming, he has outlined a program for the Gorgas Memorial Institute which, when completed, will rid the Chicago district of mosquitoes.

LESSON FOUR

All mosquitoes breed in water and in water only. They do not breed in damp grass or dew. The life cycle is the same for all kinds of mosquitoes and the stages of development are practically similar. As the house mosquito is better known than most kinds, it is described here as a typical example.

Mosquitoes Come From Eggs

All mosquitoes come from an egg and water is necessary to hatch the egg. The mother mosquito, flying along, sees a small pool of water, an upturned pail full of water, or a tin can containing a few spoonfuls of water, and there she lays her eggs.

Some lay their eggs in small dark masses of from fifty to four hundred each. These look like tiny boats floating on the water's surface and for that reason are often referred to as "egg boats" or "rafts". Others lay their eggs individually.

From the egg comes the larva, commonly called "wiggler" or "wiggle-tail". The wiggler is an energetic individual and gets its name because of its rapid "letter S" motion in the water. It finds its food in the water, very fine particles of organic matter, and gets its air supply by sticking its long, tail-like breathing syphon through the surface of the water into the air. That is why it comes up tail first, head down.

The soon-to-be mosquito remains in the larva stage, or as a wiggler, from six days to three weeks, depending on

the temperature, and then becomes a pupa. This is a decidedly changed form. The head becomes enlarged and the tail curls up. Breathing is now done through two little horns at the top of the head.

In the water the pupa resembles a comma in shape, and though it moves rapidly in the water, it is not nearly as active as the larva. After 24 to 72 hours, the pupa skin cracks and the full grown mosquito emerges in the form familiar to all.

Upon emerging the mosquito rests on top of the pupa shell until the air dries its wings, and then flies away in search of food.

Such is the evolution of a mosquito: first, the egg; second, the wriggler; third, the pupa; fourth, the full grown adult.

Not every one is able to recognize a mosquito when he sees one, for there are certain flies which resemble mosquitoes very closely. You can tell the difference because the mosquito has three pairs of legs, two wings, a head, a thorax and abdomen, a sharp beak and a visibly scaly exterior.

The mother mosquito lays from 50 to 400 eggs in water. After passing through two more stages the mosquito is born, full grown.

All mosquitoes pass through the same process of change, and, despite stories to the contrary, they do not breed in damp grass, shrubbery or dew, but only in water. Mosquitoes prefer dark, damp places, and hide in them during the heat of the day. They will die if the air is too hot and dry.

LESSON FIVE

Birds, bees and fish; animals, flowers, and trees—all things that live, follow definite laws of nature in their development and throughout their lives.

Mosquitoes are no exception to the rule.

Mosquitoes Breed Only In Water

All mosquitoes require water in which to develop, regardless of any hearsay evidence to the contrary. It is only uninformed persons who will say that mosquitoes breed in weeds, grass, or other places where there is no water present.

The life cycle of the mosquito may be compared with that of the frog. Everybody knows that the frog passes the first stages of its life in water, and, after it has grown, comes to live in the open air. The mother frog lays her eggs in the water. They hatch, and the tadpole is produced; the tadpole grows legs, shapes its tail, and hops out on the ground. But, until the frog is capable of living out of the water, it would die, the same as a fish, if deprived of its watered home.

The mother mosquito lays her eggs on the water or very close to its edge where a rise in water will float them. With her "instinct" for perpetuating the race, she sometimes lays her eggs on dry land in areas which are flooded when it rains.

After the eggs are deposited and floated on the water, they hatch, and out comes the wiggle-tail or larva. In a few days, the wiggle-tail changes into the little round ball, commonly called the tumbler, because it tumbles around in the water. This is known as the pupa stage.

Next, the skin on the back of this tumbler splits, and a mosquito emerges, and flies away in search of food. Since

there are many different kinds of mosquitoes, one can understand that each has habits slightly different from others. Some of them lay their eggs in clusters of two hundred or more. These clusters look like little rafts floating on the water, and are easily seen. Other mosquitoes scatter their eggs individually, and, because they are so small, a magnifying glass is necessary to see them.

The eggs of some mosquitoes must pass through freezing weather before they can hatch. These few examples give an idea of the natural laws of mosquito life.

The natural food for mosquitoes is plant and fruit juices, but, here again, nature rules that in addition to these foods blood must form a part of the diet of the female mosquito, while the male feeds in a natural way.

This being the case, only the female mosquito bites. And she doesn't really bite in order to get food. She bites because she must get a certain substance which is contained in blood so as to be able to develop her eggs which will produce the young. Consequently, a natural way for her to get the blood is for her to bite people and animals. It is quite evident that the mosquito race would die out if it were possible to deprive female mosquitoes of their blood meals.

Mosquitoes do not grow up. When they are born, they are as large as they ever will be. Some are large, and some are small. The difference in size is simply a peculiarity of the species.

All the growing is done when the mosquito is in the wiggle-tail or larva stage. The wiggle-tail feeds constantly. In the tumbler or pupa stage, it does not feed at all.

Mosquitoes pass the first stages of their existence in water, and are finally born there fully grown. They do not breed in grass or shrubbery.



OILING MARGIN OF STREAM WHICH CANNOT BE REACHED FROM BOAT
ON ACCOUNT OF SHALLOW WATER



CLEANING OUT A SWALE FORMED WHEN DES PLAINES OVERFLOWED ITS
BANKS IN THE SPRING



REMOVING RANK VEGETATION WHICH HAS STOPPED FLOW OF STREAM AT
TIME OF LOW WATER

LESSON SIX

The mosquito has six legs and two wings. With this vast propelling apparatus, it would seem that so small a body could be borne great distances with little or no effort. But,

Mosquitoes Travel Short Distances

as a matter of fact, the mosquito as a pedestrian is a complete failure. It does very little walking, and uses four of its legs to stand on, while the other two are apparently more or less useless, except perhaps for balancing purposes in flight.

The flight range of mosquitoes differs with the species. The little mosquito which carries dengue fever and yellow fever migrates, at most, only a few hundred yards during its life.

The mosquito capable of transmitting malaria fever ordinarily has a flight range of less than a mile. This is also true of many of the common mosquitoes found in and near dwellings.

In this country the salt marsh mosquito holds the record as a traveler. Numbers of them have been found thirty to forty miles from their breeding grounds. Light winds affect the flight of mosquitoes. The last mentioned mosquito makes use of air currents as a sailor does in handling a sail boat.

The malaria mosquito elects to fly against a light breeze. The male mosquito does not travel far. As a rule, he remains at or in close proximity to the breeding place.

The necessity for blood is responsible for the female mosquito's being a great traveler. Unless she is of the species which breeds only in inhabited sections, and unless ample blood is found near the breeding area, she goes in search of it. Hence, it is seen that the necessity of blood for the female has a great deal to do with the distance she will fly.

As there are hundreds of different mosquitoes, the information herein pertains to the few which are of importance.

Ordinarily, mosquitoes dislike sunlight, and, during the bright hours of the day, seclude themselves in vegetation or in buildings.

Mosquitoes have many natural enemies. Strong air currents are destructive to mosquitoes in flight. Birds, especially swallows, devour mosquitoes on the wing. Many are killed by other accidental means.

Circumstances and environment alter the length of time mosquitoes live. Male mosquitoes are very short-lived. A few days to a week or two embrace their span of life, varying with different species. The females of some species live longer, and have been kept alive in captivity for five or six months. This is scarcely possible in nature. Other females hibernate and live through the winter months, and deposit their eggs in the spring.

Excepting the salt marsh species, mosquitoes do not travel far. Female mosquitoes travel farther than male mosquitoes because they go in search of blood which they must have in order to mature their eggs. Male mosquitoes feed only on plant juices, and never bite animals or men.

LESSON SEVEN

Some mosquitoes transmit diseases. All such diseases are blood diseases, because the mosquito transmits an infection she received in sucking the blood of a sick person.

Some Mosquitoes Transmit Disease

More than three million people in the United States have malaria fever every year, and the cost of this disease to the people of the nation is more than one hundred million dollars. People with malaria ought to consult a doctor at once in order that they may be cured. Unless cure is effected, not only is the person himself very ill, but he is a menace to other people in the neighborhood. All that is required to spread the disease is for a malaria mosquito to bite a person sick with malaria, become infected, and pass on to a second person. This is absolutely the only way in which malaria is spread.

Other diseases are yellow fever, which was conquered by General Gorgas at Havana at the time of the Spanish-American War and at Panama during the building of the great canal; and dengue fever. The last epidemic of dengue fever occurred in 1922 when nearly five hundred thousand cases were reported in southern states from the Atlantic to Central Texas.

Since only the female mosquitoes suck blood, the female

is the only one that can spread disease, so, like Kipling's "Vampire," she is the more deadly.

It is very easy to tell the difference between male and female mosquitoes. The male has whiskers and the female has not. On either side of the mosquito's bill are two long hairs. On the male, these hairs have heavy plumage; on the female, the plumage is very light.

Malaria mosquitoes breed in the Chicago metropolitan area, and a great many of them were found in all parts of Cook County last year except in the densely built-up parts of Chicago. They are capable of causing a local epidemic of malaria. This mosquito has black spots on its wings. When it rests, it stands with its head down and its body almost straight up, just as though it were trying to stand on its head.

It breeds in the relatively clean water of swamps, slow-moving streams, lakes, ponds, seepage water from hills, wet ditches, and other similar places. It bites almost exclusively at night.

The so-called common variety of mosquitoes, which is such a pest in this section of the country, will breed in almost any place containing water, clean or foul. It has clear wings—not spotted, and stands like a fly. It bites either day or night, whenever the chance occurs.

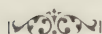
Mosquitoes cause 3,000,000 cases of malaria every year in the United States, and take more than \$100,000,000 from the nation's pocketbook as a result.

Malaria mosquitoes breed in the Chicago area. As long as they exist here, a local epidemic of malaria is possible.

Only female mosquitoes bite.



Killing mosquitoes by millions is accomplished by the control of breeding by drainage. This man is making it impossible for stagnant water to form—hence no mosquitoes.



Deep in the mud in their efforts to eliminate breeding places. A ditch will connect this “pot hole” with the main channel and water will flow off. Drainage is the preferred control method.





OILING RAILROAD "BARROW PIT," FROM BANK. USED AS A TIN CAN AND GARBAGE DUMP.



OILERS WORKING IN THE SKOKIE DITCH. AT LEFT, MAN WITH SUPPLY OF OIL FOR SPRAYER

LESSON EIGHT

Mosquitoes, being handicapped by their inability to travel very far, despite the fact that they have six legs and two wings, are unlike migratory birds and cannot go south to spend the winter months.

How Mosquitoes Spend the Winter

With the majority of the species of mosquitoes the winter is passed in the egg stage. Some species pass this period in the wiggle-tail or larva stage.

Certain ones, however, pass this unfavorable season in the adult stage. In such cases it is only the female that survives, having been previously fertilized, to deposit her eggs at the beginning of another season.

She elects to spend this time in well sheltered places such as caves, cellars, stables, dense woods, hollow trees, sometimes wedging her body beneath protruding tree bark.

Larvae, or wiggle-tails, of the species which pass the winter in this stage, are often found frozen in ice. When the ice melts and the wiggle-tail is freed, development continues in the usual way.

Some larvae go to the bottom of the water and remain in the mud when it is very cold.

The common house mosquito, which often breeds in artificial water containers, will continue to breed the year around in buildings which are continually kept warm and afford containers holding water.

The little waste water bucket under water coolers is ideally adapted to this condition.

During the past winter the workers of a large Chicago wholesale firm were nearly driven to seek other employment by the ferocity of attacks of mosquitoes breeding within the establishment.

Upon investigation it was found that the hydraulic elevator system was at fault. Leaking water collected in a large pool beneath eight inches of cement at the bottom of the shaft, and mosquitoes, reaching the water through a crack in the cement, found an ideal breeding place.

By spreading a film of oil on the water the mosquito larvae were killed, and the four story building freed of mosquitoes.

Three things are necessary to mosquito life:—water, suitable food, and suitable atmospheric temperature.

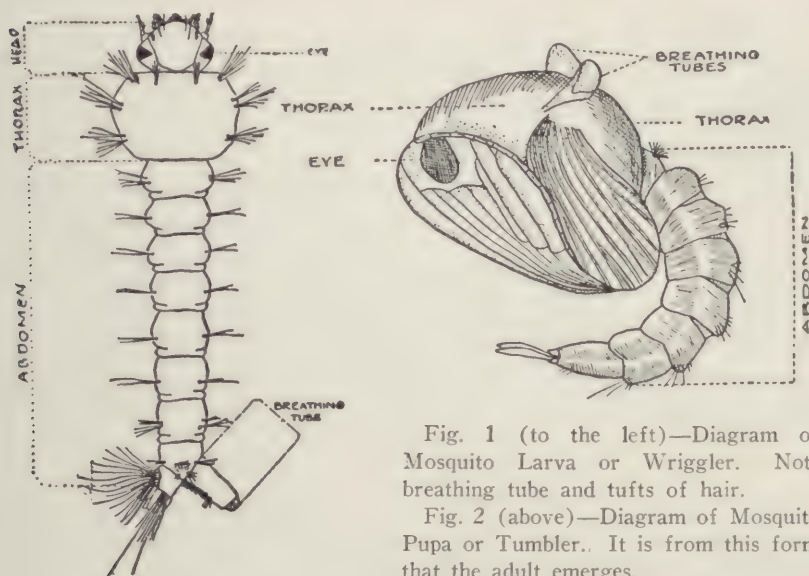


Fig. 1 (to the left)—Diagram of Mosquito Larva or Wiggler. Note breathing tube and tufts of hair.

Fig. 2 (above)—Diagram of Mosquito Pupa or Tumbler.. It is from this form that the adult emerges.

Most mosquitoes in this part of the country pass the winter in the egg stage, locked up in the ice in ponds, sluggish creeks or in shallow depressions. The eggs hatch out in the spring as soon as the weather gets warm enough. Other mosquitoes spend the winter in sheltered places.

When water is allowed to stand in warm cellars, mosquitoes often breed all winter long, and people wonder where they come from.

LESSON NINE

The sources of mosquitoes puzzle many people; in fact, most people, because they are unfamiliar with their breeding habits. But by making an inspection of each locality, sources can be determined. In many instances nature has provided natural breeding places for mosquitoes; in the absence of natural enemies they multiply rapidly.

Mosquitoes

Breed Near

Homes

It is common for people to think that the larger the body of water or swampy area, the more mosquitoes it can produce. As a matter of fact, in many instances, the places which look as if they might produce large quantities of them actually are the source of very few. Oftentimes it is because the natural enemies of mosquito larvae control the situation.

Some ponds with clean edges produce very few mosquitoes because the fish have access to the larvae that might develop there; while isolated pools close to the pond that contains no mosquito enemies, may produce large numbers.

It is easy to learn to look for mosquito larvae, or so-called wiggle-tails, and to discover the sources of annoying mosquitoes. Small wet places are often missed. Those which do not dry up within a week after a rainfall often contain very few or no mosquito enemies, and consequently may be prolific sources of mosquitoes.

Pools which are found to produce larvae can often be filled easily or drained and that ends them as breeding sources—forever.

As soon as boys and girls, men or women have learned what mosquito larvae look like, it is not difficult to find and examine all the breeding places within a half mile or a mile of any community. From such a survey one can determine how much drainage would be necessary to eliminate these sources; or whether it would be advisable to control breeding by using fuel oil or other larvicides every week or ten days during the breeding season to kill the mosquito larvae. In some communities breeding places are treated with oil until the opportunity comes to get the drainage completed.

It is astonishing how many families leave out in the open, around the yard, many home objects which will catch and retain rain water. Inspections of numerous towns show that it is common for three out of five families to raise a supply of mosquitoes close to their homes.

Last year, Boy Scouts, working as mosquito inspectors, found that 42 per cent of 3,000 homes, investigated, were breeding their own. A three minute inspection of the premises once a week would put an end to all annoying mosquitoes from this source. As a rule when the pests are definitely increasing, the source is not far away.

Sewage contaminated water produces a great many more mosquitoes than does clean water. This is noticed in towns where septic tanks are used for sewage disposal. The effluent, or contaminated water which drains away to nearby depressions, breeds mosquitoes prolifically. The remedy is a sewage disposal system.

As many as three out of five homes, in many communities, are breeding their own mosquitoes. Boy Scouts found 42 per cent of the homes they inspected in the Chicago area doing this very thing. Water containing sewage breeds more mosquitoes than does clean water.

LESSON TEN

Nearly every boy and girl who lives in Cook County as well as their mothers and fathers have been bitten by mosquitoes, so most everybody is in favor of a thoroughly reliable plan which will get rid of them.

How Boys And Girls Can Help

No one wants to live where mosquitoes keep people from enjoying outdoor life such as picnics, or from playing about the home. No one would knowingly move to a place where it was known "mosquitoes made life miserable."

But as you have learned from the preceding lessons mosquitoes can be conquered. In this modern day it is unnecessary to suffer their annoyance. Men have learned how to overcome the pests, and gradually that knowledge is spreading all over the United States.

So far it has taken twenty-five years since General Gorgas routed the yellow fever mosquito, and made the building of the Panama Canal possible, for the idea of the possibility of mosquito elimination to become common knowledge.

Now the demand for freedom from mosquitoes is so great that there is actually a shortage of men trained in anti-mosquito work. Chicago is fortunate that it is one of the cities in which expert knowledge is available for everybody, and the time is coming when Chicago's claim to the "World's Greatest Summer Resort" will not be menaced by the annoyance of the mosquito.

Since most of the mosquitoes are born in the suburban areas, suburban boys and girls can do much to eliminate them.

Where could mosquitoes grow about your home? The lessons you have read tell you that they can breed wherever there is stagnant water.

Often-times roof gutters become stopped with leaves. Rain water cannot flow off and consequently stagnates in the eaves trough. Here is a common source of mosquitoes and one which should be investigated whenever many mosquitoes are noticed about the premises.

In the garden or in the garage some member of the family has perhaps left standing a water container of some sort. In the summer time it doesn't have to stand very long before you can notice the wiggle-tails swimming around in it.

And then tin cans. Look about the yard! The chances are you can find cans, partly filled with water. A small amount is all that is needed to grow enough mosquitoes to annoy you and all the neighbors in the block.

If your bath room is not connected with a sewage system be sure that the vents of the cesspool are tightly covered with a screen not less than eighteen meshes to the inch. This is a favorite place for mosquito breeding and one that a great many people never think of.

If there are storm sewers near your home, and if there has been much rain, mosquitoes may be breeding down in the catch basin. The remedy here is three or four ounces of oil every ten days. That is enough to provide a film of oil which destroys the wiggle-tails.

So wherever there is standing water, and no natural enemies such as fish to consume the wiggle-tails, you will find mosquitoes breeding. You must keep mosquitoes from coming in contact with the water. Drainage is best. Oil is a temporary measure which sometimes must be resorted to, and only in the case of storm sewer catch basins need it be resorted to constantly.

Keep mosquitoes from breeding about your home. Make sure there is no water standing in the eaves trough; in tin cans, sprinkling pots, water pails, rain water barrels, or mosquitoes will lay eggs in it from which will hatch full grown mosquitoes. When you see mosquitoes in bushes or long grass, they are only harboring there; they were born elsewhere, probably close by.



DES PLAINES VALLEY OILING AND CLEAN-UP CREWS WITH WEAPONS USED
IN WARFARE



REMOVING OBSTRUCTIONS AND CLEANING BANKS OF DES PLAINES RIVER
AT MAYWOOD



CLEANING RIVER MARGINS AND BANKS—LOOKING NORTH FROM ROOSEVELT
ROAD BRIDGE

*The following pages
detail the anti-mosquito
activities in the
metropolitan
area*

What The Sanitary District Is Doing to Eliminate Mosquitoes

Continuing its long established policy of annual mosquito control work, the Sanitary District of Chicago this year is renewing its campaign against the winged pest on a scale surpassing all former efforts.

Following instructions issued by President Lawrence F. King to launch an immediate spring offensive, a decisive blow was delivered against the scourge before mosquito propagation could assume formidable proportions.

With the drive in full sway, a field force numbering fully one hundred men is engaged in daily combat against the "skeeter" under the direction of Edward F. Moore, Superintendent of Maintenance and Operation.

The Sanitary Board of Trustees, at a recent meeting, gave added impetus to this program by voting unanimously to devote to the task of cleaning up the Skokie Valley an adequate portion of a previously made appropriation of \$30,000.00, set aside by the Committee on Finance, of which Trustee Morris Eller is the Chairman. In addition to this area of operation, the Des Plaines River Valley, as in the past, is to receive remedial attention throughout its extent.

Through the employment of every scientific resource at its command, the Sanitary District hopes to achieve as near total extermination of the seasonal plague as is possible by applying modern methods throughout affected territory during the entire summer.

Under the definitely arranged program, a field force of preliminary clean-up crews, oilers and inspection corps is busy over a combined area of seventy-five square miles. Retention of these crews in the field until at least next October has been decided upon to assure complete success in the campaign. The system of regular inspections of treated areas and repeated applications of oil will be maintained at intervals brief enough to prevent a revival of mosquito infestation in sections where the situation has been brought under control.

Thousands of gallons of specially prepared oil have been obtained as the most powerful weapon against the mosquito. Oiling stations have been established in convenient places and from these bases the crews operate daily over a wide radius until all affected localities have been treated thoroughly. After preliminary applications, a regular cycle is observed which renews oil treatment about every ten days.

The field crews are divided into two units of equal strength, one of which is assigned to the Skokie Valley and the other to the Des Plaines River Valley. The program for the former area involves a careful inspection of the Skokie ditch from the Lake County lines to a point near Morton Grove, and patrolling the entire Skokie Valley

from Evanston north to the Sanitary District boundary, a distance of 22 miles. The bed of the Skokie ditch will be thoroughly cleaned of trees and weeds and other obstructions to give an unimpeded flow, thus preventing the formation of stagnant pools in which mosquitoes breed prolifically.

In the Des Plaines River Valley, the treatment of breeding places adjacent to the river is going forward rapidly. The projected scope of operation in this region extends over the twenty mile stretch from Des Plaines to a point two miles beyond line. The Des Plaines river is to receive a thorough marginal and channel cleaning, all undergrowth will be removed and other precautions taken to rout the winged plague which makes life uncomfortable for residents in a score of suburban communities.

A separate detachment of field workers is devoting its energy to making Salt Creek an uninhabitable place for mosquitoes. The stream and its branches will be treated in the vicinity of LaGrange, Brookfield, Western Springs, Broadview, Bellwood and Melrose Park. As a further measure to insure permanent prevention of mosquito breeding, an excavating machine is being placed in Salt Creek to open the channel and bring about a free flow during the summer months, thereby stopping the pooling of sewage and abating the objectionable conditions which now exist.

In connection with the mosquito work, President King has issued assurances that special squads will be dispatched as rapidly as possible to suburban sections from which have come urgent appeals for assistance. This phase of the program will be carried out on the plan that prevailed last year, when numerous such requests were received and aid extended.

The resources of the Sanitary District will be placed at the disposal of citizens who need help in cleaning up their own premises, and the various towns and villages which will derive the benefit of the anti-mosquito campaign are asked to appoint committees to work with the representatives of the Sanitary District and the Anti-Mosquito Board of Metropolitan Chicago. Only through a united assault upon the mosquito can effective results be achieved. Individuals, communities, railroad companies and highway commissioners are asked to work to this end.

Often through carelessness, individuals are partly responsible for conditions tending to favor mosquito breeding. Mr. King has pointed out the necessity for property owners to begin at once the removal of back yard debris, the dosing of sink waste, catch basins and floor drain traps with kerosene at ten day intervals; the closing of all openings to cisterns breeding mosquitoes, with very fine mesh wire; the proper draining of eaves troughs, the controlling of all pools, ditches and depression of containers that might be a prolific source of mosquito production.

In urging this co-operation on the part of the public, President King has issued the following "Hints For Residents" as a guide to property owners in assisting all co-operating bodies to make a complete and successful job of the mosquito elimination:



LOADING TRUCK WITH "MOSQUITO OIL" FOR DISTRIBUTION TO STATIONS
ALONG THE SKOKIE



OILING MARGINS OF STAGNANT STREAMS IS DONE BEST FROM BOAT WHEN
DEPTH OF WATER PERMITS

HINTS FOR RESIDENTS.

Mosquitoes breed only in water.

This water must be stagnant and unchanged for at least ten days.

Gold fish and minnows, and such birds as the martin, are their natural enemies.

One kind of mosquito only is the intermediary for malaria. Many are found in this neighborhood.

The larvae or wrigglers need air to live. A slight film of oil on the surface of the water causes their death.

Our control work has nothing to do with the mosquito on the wing. It has only to do with the breeding places.

If your screens are made up of wire no larger than 16 mesh, have no holes and are made tight around the edge of the screen, there should be none in the house.

HOW INDIVIDUALS MAY HELP.

Above all don't breed mosquitoes on your property.

1. Don't maintain a tin can dump in your back yard, especially a hole for such purpose.

2. If your sink waste, catch basin or floor drain traps are breeding mosquitoes, dose them with kerosene at ten day intervals.

3. If you have a cistern that is breeding mosquitoes, see that its construction is made mosquito proof by repairing its cover and closing all openings with a fine wire mesh.

4. Are your eaves troughs draining properly? Clean them out and regrade them so that the water will run off entirely.

5. Are there any pools or ditches, natural or artificial depressions, or containers on your premises that retain the rain water for two weeks or more? If it is an ornamental water surface, clean up the edge and stock the pool with minnows; if not for ornamental use, drain off the stagnant water, when possible, or keep covered with a film of oil.

6. A rain barrel must be fitted with a tight wood or fine screen cover or emptied once every ten days.

7. Finally, respect the efforts of the various agencies endeavoring to free you of the mosquito pest. Obey the ordinances regarding the unsanitary conditions and lend your co-operation to the control scheme for the abatement of the menace.

What Cities and Towns Are Doing to Eliminate Mosquitoes

By ARTHUR BURRAGE FARWELL

Member Metropolitan Committee

When Joseph A. Le Prince, the dean of mosquito fighters, came to Chicago at the request of the Gorgas Memorial, and surveyed the whole metropolitan area, he made it plain to the villages, towns and all concerned in mosquito warfare that our pests are mostly "man made."

Chicago, Mr. Le Prince pointed out, is not natural breeding territory. Streams, which under ordinary conditions would breed but few mosquitoes, are prolific breeders of mosquitoes due to contamination by waste matter emptied into them.

"Your city has grown so fast," said Mr. Le Prince, "that sanitation in the outlying areas has not yet caught up with modern practice. With the tremendous expansion program under way, more and more man-made mosquitoes will develop, unless the problem receives prompt attention."

At a citizens' meeting called to consider ways and means for following out Mr. Le Prince's recommendations, the Anti-Mosquito Board of Metropolitan Chicago was formed, with the Gorgas Memorial at the head to co-ordinate all of the various mosquito fighting bodies within the area.

Initial working funds were provided by President Cermak of the County Board, and the balance was raised by grants from various municipalities. Amounts from these sources provide for the employment of Director of Mosquito Control Edwin M. Skinner, and each town or village carries on its own anti-mosquito work under his direction and supervision.

This is by far the most economical and efficient method that could be devised because it enables the smallest community to have the same sort of assistance usually obtainable only by the largest community.

People who live in the suburbs are generally fond of outdoor life. When mosquitoes deprive them of the full and complete enjoyment of the outdoors, they realize that the mosquito is not only a pest and a nuisance, but is a detriment to health. Consequently, they are eager for mosquito elimination.

Membership in the Anti-Mosquito Board is voluntary. A town is granted membership upon its own application. Immediately thereafter, a mosquito survey is made by the Director of Mosquito Control; breeding places are pointed out to the man designated by the Mayor or President and he is given actual instructions in proper preventive measures. Periodically, Director Skinner returns to check up on the work outlined.



STORM SEWER CATCH BASINS IN SUBURBS MUST BE OILED EVERY TEN DAYS TO PREVENT BREEDING



STAGNANT POOL IN THE DES PLAINES RIVER BEFORE CLEANING AND REMOVAL OF DEBRIS

Any village or town in Cook, Du Page or Lake Counties is eligible for membership in the Anti-Mosquito Board, as well as such member organizations as the Sanitary District, and Cook and Du Page Counties. Municipal membership is held by:

Evanston	River Forest
Wilmette	Maywood
Kenilworth	Berwyn
Winnetka	Riverside
Glencoe	La Grange
Lake Forest	Western Springs
Lake Bluff	Downers Grove
Oak Park	Melrose Park

Clarendon Hills

A number of other towns are expected to secure membership later in the season.

The Metropolitan Committee assumes the duty of presenting the facts of the Anti-Mosquito Board to the various communities. Its membership consists of:

George A. Hughes, Riverside.

Dr. I. D. Rawlings, Director of Health, State of Illinois.

Dr. Herman Bundesen, Commissioner of Health, Chicago.

Dudley C. Meyers, Commissioner of Public Works, Oak Park.

Arthur Stringer, Gorgas Memorial Institute.

Dr. Herbert L. Wright, Director of Health, Cook County.

Dr. W. A. Evans, Chicago Tribune, Former Chicago Health Commissioner.

Arthur Burrage Farwell, President Glencoe Mosquito Abatement Association.

Edgar Otto, Mayor of Downers Grove.

Mrs. Charles Fischer, Evanston Mosquito Abatement Association.

Mrs. B. F. Langworthy, President Woman's City Club.

Mrs. Harold Ickes, President Woman's Club.

Miss Margaret Harris, Kenilworth.

Otto Balgeman, Mayor of Elmhurst.

Dr. C. C. Pierce, United States Public Health Service, Chicago.

Otto McFeely, Oak Park.

Francis Farwell, Evanston.

Dr. Julia Strawn, Chicago.

Ben H. Badenoch, River Forest.

N. W. Lies, Board of Supervisors, Du Page County.

E. J. Morris, Scout Executive, Oak Forest Area, Boy Scouts.

Langdon Pearse, Sanitary Engineer, Sanitary District.

Anton J. Cermak, President Cook County Commissioners.

Lawrence F. King, President Sanitary District.

People annoyed by mosquitoes and living in towns not carrying on anti-mosquito work should get in touch with the Gorgas Memorial Institute. A member of the Metropolitan Committee will be glad to present all of the facts concerning mosquito eradication and how freedom from mosquito bites is accomplished.

What The Golf Clubs Are Doing to Help

By LEWIS W. PITCHER

The clubs which make up the Chicago District Golf Association control, through ownership or lease, thousands of acres of land, some of which is mosquito breeding territory. Consequently the clubs are anxious to help in a movement so desirable as that undertaken by the Gorgas Memorial Institute for the elimination of mosquitoes.

To begin with, many of our members were unfamiliar with the breeding habits of mosquitoes, and were astonished when informed that mosquitoes do not breed in damp grass and shrubbery, but only in stagnant water.

Under the direction of the Institute, and with the assistance of the daily newspapers and editors of such magazines as "Chicago Golfer," "Golf Illustrated," and "Clubhouse and Fairway," our great membership of golfers is being educated as to the best methods to eliminate the mosquito pest. I am sure the lessons in the front of this volume will prove as beneficial and interesting to many adults as they will to the boys and girls for whom they were primarily intended.

The national program of mosquito elimination, sponsored by the Gorgas Memorial, has received the official endorsement of the Western Golf Association and the United States Golf Association. President "Bob" Gardner of the Chicago District Golf Association has recommended that each club co-operate in the anti-mosquito campaign and free its course of mosquito pests. A request to the Gorgas Memorial Institute is all that is necessary to secure a mosquito survey.

The local Golf Club Committee consists of:

Scott S. Durand, President Onwentsia Club.
Hobart Young, President Western Golf Association.
Melvin Traylor, Member, Executive Committee, U. S. G. A.
E. F. Carry, President Old Elm Country Club.
Dr. G. G. Dowdall, President Flossmoor Country Club.
John Slade, President Glen View Club.
Paul Albert, President Elmhurst Golf Club.
E. A. Garard, President Midlothian Country Club.
Clark Cavenee, President Skokie Golf Club.
Lewis W. Pitcher, Midlothian Country Club.
C. K. Knickerbocker, Chicago Golf Club.
W. D. McKenzie, President Indian Hill Club.
Charles M. Smalley, Olympia Fields Country Club.
E. M. Ashcraft, President Calumet Country Club.
Victor B. Scott, President North Shore Golf Club.
S. H. Stix, Ravisloe Country Club.
Charles H. Thorne, Exmoor Country Club.
Clarence S. Pellet, Oak Park Country Club.
Mrs. Gilbert Fitz-Patrick, Glen View Club.
Edwin Lobdell, Exmoor Country Club.
D. F. Kelly, Exmoor Country Club.
W. G. Bierd, President, Chicago & Alton Railway.
James Gorman, President, Chicago, Rock Island & Pacific Railway.
Charles H. Markham, President Illinois Central Railway.
Louis Eckstein, President Ravinia Association.
R. A. Gardner, President Chicago District Golf Association.



(Courtesy "Chicago Golfer")

A PAGE OF INDIVIDUAL SUGGESTIONS BY THE ARTIST FOR SOME OF OUR LEADING CITIZENS WHO ARE AMONG THE MEMBERS OF THE GOLF CLUB COMMITTEE OF THE ANTI-MOSQUITO BOARD.

FROM OLD ELM ON THE NORTH TO OLYMPIA FIELDS ON THE SOUTH AND AS FAR WEST AS THE CHICAGO GOLF CLUB, IN DU PAGE COUNTY, MOSQUITO SURVEYS HAVE BEEN MADE. SOME CLUBS ARE PESTERED BY MOSQUITOES WHICH WERE BORN ON ADJACENT TERRITORY WHILE OTHER CLUBS WERE FOUND "BREEDING THEIR OWN."

How Boy Scouts Are Helping Abate The Mosquito Nuisance

By ERNEST J. MORRIS

Scout Executive, Oak Park Area

"And what do you lads want?" was the sharp demand of Mrs. Perkins, as she dried her hands on her apron, visibly annoyed at being interrupted for the third time during her busy morning.

"We want to help make your summer evenings more enjoyable without any mosquitoes forcing you to barricade your family behind screened porches," was the pleasantly confident reply of an alert, neatly uniformed Scout Patrol Leader, the spokesman for his two equally attractive Scout buddies.

"That's very kind and thoughtful of you, I'm sure," responded the now curious housewife.

"You Scouts certainly look capable and appear ready and determined to carry out your promise, but just how do you propose to do it?"

"Oh, that's easy when all the folks take as much interest in it as you do, Missus," this from the youngest diplomat of the trio. "We have been taught by the Gorgas Memorial Institute that these pests only breed in stagnant water and so the village authorities have asked us Boy Scouts to help you people locate and get rid of all places where there is stagnant water before the mosquitoes' eggs can hatch out."

"Sure, we can find all those places for you," butts in the rosy-cheeked good-natured Fatty, "cuz if you're like my Ma, you won't have any time to look for those places like we can."

"Why, over in Avery's back yard we found an old wheelbarrow half full of water and just chuck full of mosquito eggs and wrigglers, and they'd a been enough skeeters hatched out of there alone to sting all the people on this street," pipes out the third energetic enthusiast, "'cuz sixty mosquitoes can be hatched out in one square inch of that dirty water—and you should 'a seen how the gutters was all plugged



CROOKED POLE AND SPONGE PERMIT BOY SCOUTS TO MAKE QUICK INVESTIGATION OF EAVES TROUGHS



A FINE PLACE FOR MOSQUITO BREEDING IN WET WEATHER. NOW GRADUALLY BEING FILLED IN

up with leaves and water over to Jones'es house—he was surprised as the dickens when we told him how many skeeters could grow in there.”

The good lady of the house, by this time highly surprised and amused by these eager outbursts of the Scouts, turned, interestedly to the older boy, who resumed, “You see, madam, these jointed poles with the hook and sponge on one end, when extended will reach up to the eaves trough of the house. We find out if they are clogged enough to hold water for about ten days after a rain, because if they do, mosquitoes will grow in them during that time.

“Also we can tell you if your cistern needs a new cover so no skeeters can hatch out in the water. We have here a hundred reports of the houses that we visited this morning. Forty-five of these residences have places where mosquitoes can breed and the folks living there didn't have any idea that some of their summer pests were ‘home grown’.”

“Well, that certainly is wonderful! What Good Turn will you Boy Scouts be up to next? Be sure and tell me if you find any mosquito breeding places around my place,” beamed Mrs. Perkins and she returned to her work smiling after this instructive intermission.

This is just one of several similar conversations that can be heard almost any Saturday in the towns of Oak Park, River Forest, Maywood, Forest Park and Melrose Park, which towns comprise the Oak Park Area Council of the Boy Scouts of America. The Scouts in these villages have gone after mosquito breeding with a vengeance.

Each of the fifty-six troops have two such squads of three Scouts with a definite territory assigned in which it is their task to bring to light and help clean up all possible pest breeding places. Many of these communities employ men to check over the reports turned in by the Scouts and eliminate the gravest of the breeding places by treating them with oil and by having clogged house gutters and sewer trap basins cleaned.

The value of this important community service will endure two-fold in the next generation for it is certain that the Scouts who participate in this work now will not tolerate any such conditions on their premises as the home-owners of tomorrow.

What Cook County Is Doing to Eliminate Mosquitoes

By ANTON J. CERMAK

President of Cook County Board

The County Board has endeavored to be a pioneer in the war on mosquitoes, and has not only co-operated with the Gorgas Memorial Institute, but has also, in a concrete manner, pursued the activities assigned it in the mosquito battle of Cook County.

There is a certain selfishness in our activities, a selfishness in the interest of the millions who visit our 31,500 acres of "Wooded Wonderland," that skirt the county and through which run the Des Plaines River, Salt Creek and the Little Calumet.

We are anxious to make every foot of this vast acreage a pleasure ground for the citizens of Cook County and its thousands of visitors.

That is why we were among the first to endorse the program submitted and to appropriate funds for the employment of a mosquito expert to direct the battle throughout the whole district. It is also the reason why we assigned assistant Chief Foresters to work along with the other mosquito fighters.

Efforts are directed towards permanent control—to eliminate stagnant pools which are ideal receptacles for mosquito propagation. An army of men, equipped with sprayers, expertly place a film of oil on such pools, producing the annoying and disease bearing pests, when it is not desirable to drain them.

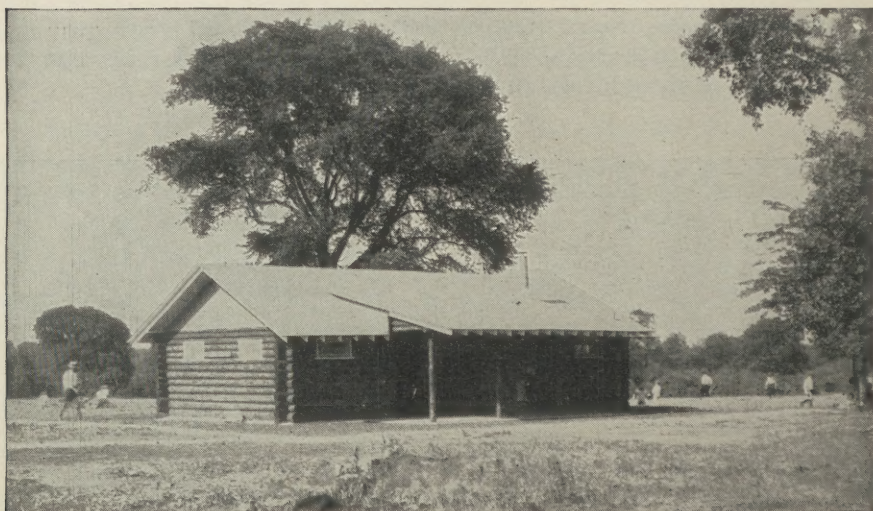
We are in the mosquito fight with a purpose and a program and we hope by co-operating with the other agencies to minimize the propagation of mosquitoes in this territory.



CAMP IN THE "WOODED WONDERLAND" FOR THE BENEFIT OF THE CITIZENS OF COOK COUNTY



CAMP REINBERG. ONE OF THE MANY BEAUTIFUL SPOTS WITHIN THE
31,500 ACRES



A LOG CABIN SITE IN THE FOREST PRESERVES ENJOYED BY THOUSANDS
ALL SUMMER LONG

